

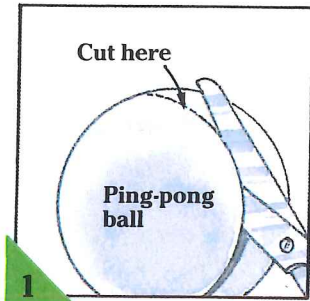
Make a clown that won't lie down

All objects have a centre of gravity, where the object balances and all its weight seems to be concentrated. Top-heavy objects have a high centre of gravity, which makes them easy to tip over. Objects with heavy

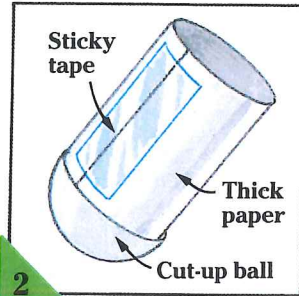
bases have a low centre of gravity, which makes them more stable. Follow the instructions below to make this clown. Then try changing its centre of gravity and watch the effect that gravity has on it.

You will need

Ping-pong ball
Thick paper 10 cm x 5 cm
(4 in x 2 in)
Scissors
Sticky tape
Pen
Plasticine *



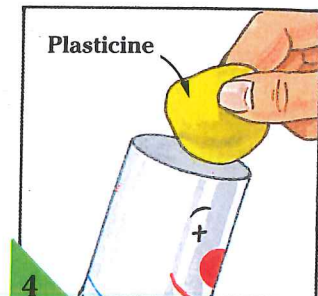
1 Push one blade of your scissors into the ping-pong ball on the join line. Cut all the way around the line.



2 Roll the paper so that it fits snugly inside one half of the ball. Then tape up the side of the paper to make a tube.

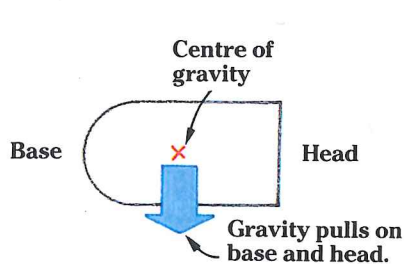


3 Tape the bottom of the paper tube to the ball. Draw a face on the paper, supporting it from the back with two fingers.

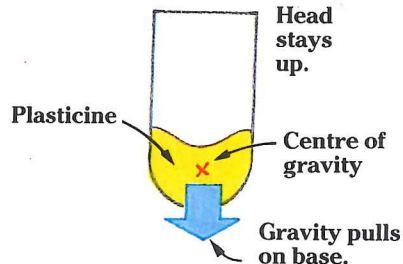


4 Your clown will not stand up. Press plasticine into the clown's base to make it stand. Then try to push it over.

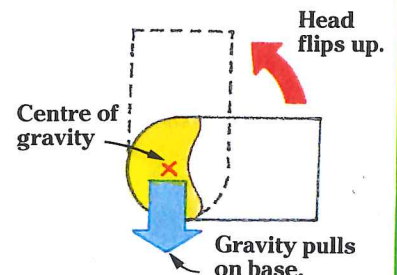
Why the clown won't lie down



Without plasticine in its base, the clown's centre of gravity is around its middle. Gravity pulls equally on the clown's head and on its base, so it stays down.



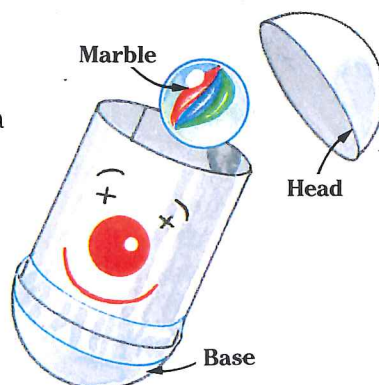
When you push in the plasticine, the clown has a new centre of gravity in its base. Now gravity pulls on the clown's base, so it stands up.



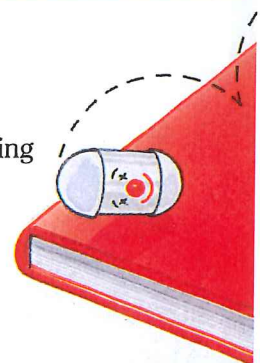
When you try to tip over the weighted clown, gravity still pulls on its base, but not on its head, so the base stays down and the head flips up.

Now try this

Take the plasticine lump out of the ping-pong ball and drop in a marble. Now tape the other half of the ball to the open end of the paper tube.



Stand your clown on a gentle slope. It will flip from head to base and over again as the rolling marble makes the centre of gravity move from one end of the clown to the other.



* Plastic modelling clay (US).